

15. SPECIALIST IN OPTIMIZATION AND DEVELOPMENT OF MRI EQUIPMENT, SEQUENCES, AND STUDY TECHNIQUES¹

Level I

Department of Experimental and Clinical Biomedical Sciences "Mario Serio"

Course coordinator

Cosimo Nardi

STUDY PLAN

Subject	Academic Discipline	CREDITS
1. Introductory elements of mathematics, statistics, computer science, and physics		6
RM-oriented basic mathematics and statistics	FIS/07	3
Basics of MRI physics and elements of image informatics (imaging and information management, RIS/PACS)	FIS/07	3
Physics, instrumentation/technology, and safety in magnetic resonance imaging		6
MRI signal training, acquisition, and processing. Basic elements of sequences.	FIS/07	3
Spatial coding and image reconstruction. Instrumentation and advanced acquisition techniques. Magnet technology and safety elements in MRI.	FIS/07	3
Techniques and sequences in clinical applications of MRI		9
Complete treatment of MRI sequences and their study by K-space. Strategies in the choice of scanning parameters and contrast optimization. Reduction of artifacts techniques	MED/50	3
Advanced imaging applications and techniques (DWI, PWI, etc...)	MED/36	3
Advanced imaging applications and techniques (DTI, fMRI, etc...) applied to neuro	MED/37	3
4. Study techniques by district, pathology, and use of contrast media. Processing and diagnostic quality of MRI images.		9
Tissue contrast and use of contrast media. Study of pathologies in MRI	MED/36	3
Study techniques by district. Processing procedures and elements of diagnostic quality of MRI images	MED/36	3
Clinical management of the patient and MRI examination. Ethics and responsibility in diagnostic practice	MED/36	3
Total credits for face-to-face classes		30
Internship/Practical Training Activity		27
Final examination		3
Total credits		60

¹ This document is a translation of the form A.2 relating to the study plan of the course attached to the Decree of the Deputy number 848 (record 153310) of 2th of July 2024, drafted in Italian and issued on the Master | Didattica | Università degli Studi di Firenze | UniFI and which therefore constitutes the only official document. This English translation cannot be used for legal purposes and has the sole purpose of supplying information in English on the content of the public notice